CLAIMS:

1. A sample processing assembly comprising:

a sample processing device comprising:

a body that comprises a first side attached to a second side;

a plurality of process arrays formed between the first and second sides, wherein each process array of the plurality of process arrays comprises a loading structure, a main conduit comprising a length, a plurality of process chambers distributed along the main conduit, and a deformable seal located between the loading structure and the plurality of process chambers, wherein the main conduit is in fluid communication with the loading structure and the plurality of process chambers;

a carrier attached to the sample processing device, the carrier comprising:

a first surface facing the sample processing device and a second surface facing away from the sample processing device;

a plurality of main conduit support rails proximate the first surface of the carrier, wherein each main conduit of the plurality of process arrays is aligned with one main conduit support rail of the plurality of main conduit support rails; and

a plurality of openings formed through the first and second surfaces of the carrier, wherein each opening of the plurality of openings is aligned with one process chamber of the plurality of process chambers.

2. An assembly according to claim 1, wherein the carrier further comprises a plurality of compression structures proximate the first surface of the carrier, each compression structure of the plurality of compression structures proximate one process chamber of the plurality of process chambers.

3. An assembly according to claim 1, wherein the carrier further comprises:

a plurality of compression structures proximate the first surface of the carrier, each compression structure of the plurality of compression structures proximate one process chamber of the plurality of process chambers; and

a plurality of force transmission structures, each force transmission structure of the plurality of force transmission structures comprising a discrete landing area proximate the second surface of the carrier, and each force transmission structure of the plurality of force transmission structures being operatively connected to a plurality of the plurality of compression structures, wherein a force applied to the landing surface of each force transmission structure is transmitted to the plurality of compression structures operatively connected to the force transmission structure.

4. An assembly according to claim 1, wherein the carrier further comprises a plurality of collars proximate the first surface of the carrier, each collar of the plurality of collars aligned with and proximate to one process chamber of the plurality of process chambers.

5. An assembly according to claim 4, wherein each collar in the plurality of collars diffuses or absorbs electromagnetic radiation of selected wavelengths.

6. An assembly according to claim 1, further comprising a plurality of collars proximate the first surface of the carrier, wherein each opening of the plurality of openings is aligned with one collar of the plurality of collars, and further wherein each collar of the plurality of collars is aligned with one process chamber of the plurality of process chambers.

7. An assembly according to claim 1, further comprising at least one reagent in at least one of the process chambers.

8. An assembly according to claim 1, wherein each process chamber of the plurality of process chambers comprises a volume of about 5 microliters or less.

9. An assembly according to claim 1, wherein the second side of the sample processing device comprises a metallic layer.

10. An assembly according to claim 1, wherein the sample processing device comprises adhesive located between the first side and the second side of the sample processing device.

11. An assembly according to claim 1, wherein the sample processing device comprises pressure sensitive adhesive located between the first side and the second side of the sample processing device.

12. An assembly according to claim 1, wherein, for each process array of the plurality of process arrays, the deformable seal comprises a deformable portion of the second side of the sample processing device.

13. An assembly according to claim 1, wherein, for each process array of the plurality of process arrays, the deformable seal comprises a deformable metallic layer.

14. An assembly according to claim 1, wherein, for each process array of the plurality of process arrays, the deformable seal comprises a deformable portion of the second side of the body, the deformable portion extending along substantially all of the length of the main conduit.

15. An assembly according to claim 1, wherein, for each process array of the plurality of process arrays, the deformable seal comprises adhesive located between the first side and the second side, the adhesive extending along a portion of the length of the main conduit.

16. An assembly according to claim 1, wherein, for each process array of the plurality of process arrays, the deformable seal comprises adhesive located

between the first side and the second side, the adhesive extending along substantially all of the length of the main conduit.

17. An assembly according to claim 1, wherein, for each process array of the plurality of process arrays, the deformable seal comprises conformable seal material.

18. An assembly according to claim 1, wherein, for each process array of the plurality of process arrays, the deformable seal comprises expandable seal material.

19. A method of processing sample materials, the method comprising:

providing a sample processing assembly comprising:

a sample processing device comprising:

a body that comprises a first side attached to a second side;

a plurality of process arrays formed between the first and second sides, wherein each process array of the plurality of process arrays comprises a loading structure, a main conduit comprising a length, and a plurality of process chambers distributed along the main conduit, wherein the main conduit is in fluid communication with the loading structure and the plurality of process chambers;

a deformable seal located between the loading structure and the plurality of process chambers in each process array of the plurality of process arrays; and

a carrier attached to the sample processing device, the carrier comprising:

a first surface facing the sample processing device and a second surface facing away from the sample processing device;

a plurality of main conduit support rails proximate the first surface of the carrier, wherein each main conduit of the plurality of process arrays is aligned with one main conduit support rail of the plurality of main conduit support rails; and

a plurality of openings formed through the first and second surfaces of the carrier, wherein each opening of the plurality of openings is aligned with one process chamber of the plurality of process chambers;

distributing sample material to at least some of the process chambers in each process array of the plurality of process arrays through the main conduit in each of the process arrays;

closing the deformable seal in each process array of the plurality of process arrays, the closing comprising supporting the main conduit with one of the main conduit support rails while compressing the first side and the second side of the sample processing device together along the main conduit;

locating the second side of the sample processing device in contact with a thermal block; and

controlling the temperature of the thermal block while the sample processing device is in contact with the thermal block.

20. A method according to claim 19, wherein closing the deformable seal in each process array of the plurality of process arrays comprises simultaneously closing the deformable seal in each process array of the plurality of process arrays.

21. A method according to claim 19, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises occluding the main conduit along substantially all of its length.

22. A method according to claim 19, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises occluding the main conduit along only a portion of its length.

23. A method according to claim 19, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises occluding the main conduit along substantially all of its length beginning at a point distal from the loading structure and proceeding towards the loading structure, whereby sample material within the main conduit is urged towards the loading structure.

24. A method according to claim 19, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises occluding only a portion of the length of the main conduit beginning at a point distal from the loading structure and proceeding towards the loading structure, whereby sample material within the main conduit is urged towards the loading structure.

25. A method according to claim 19, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises deforming a deformable portion of the second side of the body.

26. A method according to claim 19, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises deforming a deformable metallic layer.

27. A method according to claim 19, wherein, for each process array of the plurality of process arrays, at least a portion of the deformable seal comprises adhesive, and wherein closing the deformable seal comprises adhering the first side and the second side together using the adhesive.

28. A method according to claim 19, wherein, for each process array of the plurality of process arrays, the deformable seal comprises pressure sensitive adhesive located along substantially all of the length of the main conduit, and wherein closing the deformable seal comprises occluding the main conduit along substantially all of its length by adhering the first side and the second side together within the main conduit using the adhesive.

29. A method according to claim 19, wherein, for each process array of the plurality of process arrays, the deformable seal comprises pressure sensitive adhesive located along substantially all of the length of the main conduit, and wherein closing the deformable seal comprises occluding the main conduit along substantially all of its length by adhering the first side and the second side together within the main conduit using the pressure sensitive adhesive, wherein the occluding begins at a point distal from the loading structure and proceeds towards the loading structure, whereby sample material within the main conduit is urged towards the loading structure.

30. A method according to claim 19, wherein, for each process array of the plurality of process arrays, each process chamber of the plurality of process chambers contains at least one reagent before the sample material is distributed.

31. A method of processing sample materials, the method comprising:

providing a sample processing assembly comprising:

a sample processing device comprising:

a body that comprises a first side attached to a second side;

a plurality of process arrays formed between the first and second sides, wherein each process array of the plurality of process arrays comprises a loading structure, a main conduit comprising a length, and a plurality of process chambers distributed along the main conduit, wherein the main conduit is in fluid communication with the loading structure and the plurality of process chambers;

a carrier attached to the sample processing device, the carrier comprising:

a first surface facing the sample processing device and a second surface facing away from the sample processing device;

a plurality of openings formed through the first and second surfaces of the carrier, wherein each opening of the plurality of openings is aligned with one process chamber of the plurality of process chambers;

distributing sample material to at least some of the process chambers in each process array of the plurality of process arrays through the main conduit in each of the process arrays;

locating the second side of the sample processing device in contact with a thermal block;

selectively compressing the first side and second side of the sample processing device together proximate each process chamber of the plurality of process chambers, the selective compression occurring between the carrier and the thermal block; and

controlling the temperature of the thermal block while the sample processing device is in contact with the thermal block.

32. A method according to claim 31, wherein the selectively compressing comprises compressing substantially all of the sample processing device outside of the process chambers.

33. A method according to claim 31, wherein the carrier comprises compressible material, and further wherein the selectively compressing comprises compressing substantially all of the sample processing device outside of the process chambers.

34. A method according to claim 31, wherein the selectively compressing comprises compressing a discrete area proximate each of the process chambers.

35. A method according to claim 31, wherein the carrier further comprises a plurality of compression structures proximate the first surface of the carrier, each compression structure of the plurality of compression structures proximate one process chamber of the plurality of process chambers, and further wherein

the selectively compressing comprises compressing a discrete area proximate each of the process chambers using the compression structures.

36. A method according to claim 31, wherein the carrier further comprises:

a plurality of compression structures proximate the first surface of the carrier, each compression structure of the plurality of compression structures proximate one process chamber of the plurality of process chambers; and

a plurality of force transmission structures, each force transmission structure of the plurality of force transmission structures comprising a discrete landing area proximate the second surface of the carrier, and each force transmission structure of the plurality of force transmission structures being operatively connected to a plurality of the plurality of compression structures;

wherein the selectively compressing comprises applying a force to the landing surface of each force transmission structure, and wherein the force is transmitted to the plurality of compression structures operatively connected to the force transmission structures.

37. A method according to claim 31, wherein the carrier further comprises a plurality of collars proximate the first surface of the carrier, each collar of the plurality of collars aligned with one process chamber of the plurality of process chambers;

and further wherein the selectively compressing comprises compressing a discrete area proximate each of the process chambers with one collar of the plurality of collars.

38. A method according to claim 31, wherein the sample processing device comprises adhesive located between the first side and the second side of the sample processing device, and further wherein the selectively compressing comprises compressing at least a portion of the adhesive.

39. A method according to claim 31, wherein the sample processing device comprises pressure sensitive adhesive located between the first side and the

second side of the sample processing device, and further wherein the selectively compressing comprises compressing at least a portion of the pressure sensitive adhesive.

40. A method according to claim 31, wherein, for each process array of the plurality of process arrays, each process chamber of the plurality of process chambers contains at least one reagent before the sample material is distributed.

41. A sample processing assembly comprising:

a sample processing device comprising:

a body that comprises a first side attached to a second side;

a plurality of process arrays formed between the first and second sides, wherein each process array of the plurality of process arrays comprises a loading structure, a main conduit comprising a length, and a plurality of process chambers distributed along the main conduit, wherein the main conduit is in fluid communication with the loading structure and the plurality of process chambers;

a carrier attached to the sample processing device, the carrier comprising:

a first surface facing the sample processing device and a second surface facing away from the sample processing device;

a plurality of openings formed through the first and second surfaces of the carrier, wherein each opening of the plurality of openings is aligned with one process chamber of the plurality of process chambers; and

a plurality of compression structures proximate the first surface of the carrier, each compression structure of the plurality of compression structures proximate one process chamber of the plurality of process chambers.

42. An assembly according to claim 41, wherein each of the compression structures comprises a collar aligned with one of the process chambers.

43. An assembly according to claim 41, further comprising at least one reagent in at least one of the process chambers.

44. An assembly according to claim 41, wherein each process chamber of the plurality of process chambers comprises a volume of about 5 microliters or less.

45. An assembly according to claim 41, wherein the second side of the sample processing device comprises a metallic layer.

46. An assembly according to claim 41, wherein the sample processing device comprises adhesive located between the first side and the second side of the sample processing device.

47. An assembly according to claim 41, wherein the sample processing device comprises pressure sensitive adhesive located between the first side and the second side of the sample processing device.

48. A sample processing assembly comprising:

a sample processing device comprising:

a body that comprises a first side attached to a second side;

a plurality of process arrays formed between the first and second sides, wherein each process array of the plurality of process arrays comprises a loading structure, a main conduit comprising a length, and a plurality of process chambers distributed along the main conduit, wherein the main conduit is in fluid communication with the loading structure and the plurality of process chambers;

a deformable seal located between the loading structure and the plurality of process chambers in each process array of the plurality of process arrays; and

a carrier attached to the sample processing device, the carrier comprising:

a first surface facing the sample processing device and a second surface facing away from the sample processing device;

a plurality of main conduit support rails proximate the first surface of the carrier, wherein each main conduit of the plurality of process arrays is aligned with one main conduit support rail of the plurality of main conduit support rails;

a plurality of openings formed through the first and second surfaces of the carrier, wherein each opening of the plurality of openings is aligned with one process chamber of the plurality of process chambers; and

a plurality of compression structures proximate the first surface of the carrier, each compression structure of the plurality of compression structures proximate one process chamber of the plurality of process chambers.

49. An assembly according to claim 48, wherein each of the compression structures comprises a collar aligned with one of the process chambers.

50. An assembly according to claim 48, further comprising at least one reagent in at least one of the process chambers.

51. An assembly according to claim 48, wherein each process chamber of the plurality of process chambers comprises a volume of about 5 microliters or less.

52. An assembly according to claim 48, wherein the second side of the sample processing device comprises a metallic layer.

53. An assembly according to claim 48, wherein the sample processing device comprises adhesive located between the first side and the second side of the sample processing device.

54. An assembly according to claim 48, wherein the sample processing device comprises pressure sensitive adhesive located between the first side and the second side of the sample processing device.

55. An assembly according to claim 48, wherein, for each process array of the plurality of process arrays, the deformable seal comprises a deformable portion of the second side of the sample processing device.

56. An assembly according to claim 48, wherein, for each process array of the plurality of process arrays, the deformable seal comprises a deformable metallic layer.

57. An assembly according to claim 48, wherein, for each process array of the plurality of process arrays, the deformable seal comprises a deformable portion of the second side of the body, the deformable portion extending along substantially all of the length of the main conduit.

58. An assembly according to claim 48, wherein, for each process array of the plurality of process arrays, the deformable seal comprises adhesive located between the first side and the second side, the adhesive extending along a portion of the length of the main conduit.

59. An assembly according to claim 48, wherein, for each process array of the plurality of process arrays, the deformable seal comprises adhesive located between the first side and the second side, the adhesive extending along substantially all of the length of the main conduit.

60. An assembly according to claim 48, wherein, for each process array of the plurality of process arrays, the deformable seal comprises conformable seal material.

61. An assembly according to claim 48, wherein, for each process array of the plurality of process arrays, the deformable seal comprises expandable seal material.

62. A method of processing sample materials, the method comprising:

providing a sample processing assembly comprising:

a sample processing device comprising:

a body that comprises a first side attached to a second side;

a plurality of process arrays formed between the first and second sides, wherein each process array of the plurality of process arrays comprises a loading structure, a main conduit comprising a length, and a plurality of process chambers distributed along the main conduit, wherein the main conduit is in fluid communication with the loading structure and the plurality of process chambers;

a deformable seal located between the loading structure and the plurality of process chambers in each process array of the plurality of process arrays; and

a carrier attached to the sample processing device, the carrier comprising:

a first surface facing the sample processing device and a second surface facing away from the sample processing device;

a plurality of main conduit support rails proximate the first surface of the carrier, wherein each main conduit of the plurality of process arrays is aligned with one main conduit support rail of the plurality of main conduit support rails; and

a plurality of openings formed through the first and second surfaces of the carrier, wherein each opening of the plurality of openings is aligned with one process chamber of the plurality of process chambers;

distributing sample material to at least some of the process chambers in each process array of the plurality of process arrays through the main conduit in each of the process arrays;

closing the deformable seal in each process array of the plurality of process arrays, the closing comprising supporting the main conduit with one of the main conduit support rails while compressing the first side and the second side of the sample processing device together along at least a portion of the length of the main conduit;

locating the second side of the sample processing device in contact with a thermal block;

selectively compressing the first side and second side of the sample processing device together proximate each process chamber of the plurality of process chambers, the selective compression occurring between the carrier and the thermal block; and

controlling the temperature of the thermal block while the sample processing device is in contact with the thermal block.

63. A method according to claim 62, wherein closing the deformable seal in each process array of the plurality of process arrays comprises simultaneously closing the deformable seal in each process array of the plurality of process arrays.

64. A method according to claim 62, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises occluding the main conduit along substantially all of its length.

65. A method according to claim 62, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises occluding the main conduit along only a portion of its length.

66. A method according to claim 62, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises occluding the main conduit along substantially all of its length beginning at a point distal from the loading structure and proceeding towards the loading structure, whereby sample material within the main conduit is urged towards the loading structure.

67. A method according to claim 62, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises occluding only a portion of the length of the main conduit beginning at a point distal from the loading structure and proceeding towards the loading structure, whereby sample material within the main conduit is urged towards the loading structure.

68. A method according to claim 62, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises deforming a deformable portion of the second side of the body.

69. A method according to claim 62, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises deforming a deformable metallic layer.

70. A method according to claim 62, wherein, for each process array of the plurality of process arrays, at least a portion of the deformable seal comprises adhesive, and wherein closing the deformable seal comprises adhering the first side and the second side together using the adhesive.

71. A method according to claim 62, wherein, for each process array of the plurality of process arrays, the deformable seal comprises pressure sensitive adhesive located along substantially all of the length of the main conduit, and

wherein closing the deformable seal comprises occluding the main conduit along substantially all of its length by adhering the first side and the second side together within the main conduit using the adhesive.

72. A method according to claim 62, wherein, for each process array of the plurality of process arrays, the deformable seal comprises pressure sensitive adhesive located along substantially all of the length of the main conduit, and wherein closing the deformable seal comprises occluding the main conduit along substantially all of its length by adhering the first side and the second side together within the main conduit using the adhesive, wherein the occluding begins at a point distal from the loading structure and proceeds towards the loading structure, whereby sample material within the main conduit is urged towards the loading structure.

73. A method according to claim 62, wherein, for each process array of the plurality of process arrays, each process chamber of the plurality of process chambers contains at least one reagent before the sample material is distributed.

74. A method according to claim 62, wherein the selectively compressing comprises compressing substantially all of the sample processing device outside of the process chambers.

75. A method according to claim 62, wherein the carrier comprises compressible material, and further wherein the selectively compressing comprises compressing substantially all of the sample processing device outside of the process chambers.

76. A method according to claim 62, wherein the selectively compressing comprises compressing a discrete area proximate each of the process chambers.

77. A method according to claim 62, wherein the carrier further comprises a plurality of collars proximate the first surface of the carrier, each collar of the

plurality of collars aligned with one process chamber of the plurality of process chambers; and further wherein the selectively compressing comprises compressing a discrete area proximate each of the process chambers with one collar of the plurality of collars.

78. A method according to claim 62, wherein the sample processing device comprises adhesive located between the first side and the second side of the sample processing device, and further wherein the selectively compressing comprises compressing at least a portion of the adhesive.

79. A method according to claim 62, wherein the sample processing device comprises pressure sensitive adhesive located between the first side and the second side of the sample processing device, and further wherein the selectively compressing comprises compressing at least a portion of the pressure sensitive adhesive.

80. A method of processing sample materials, the method comprising:

providing a sample processing assembly comprising:

a sample processing device comprising:

a body that comprises a first side attached to a second side;

a plurality of process arrays formed between the first and second sides, wherein each process array of the plurality of process arrays comprises a loading structure, a main conduit comprising a length, and a plurality of process chambers distributed along the main conduit, wherein the main conduit is in fluid communication with the loading structure and the plurality of process chambers;

a deformable seal located between the loading structure and the plurality of process chambers in each process array of the plurality of process arrays; and

a carrier attached to the sample processing device, the carrier comprising:

a first surface facing the sample processing device and a second surface facing away from the sample processing device;

a plurality of main conduit support rails proximate the first surface of the carrier, wherein each main conduit of the plurality of process arrays is aligned with one main conduit support rail of the plurality of main conduit support rails; and

a plurality of openings formed through the first and second surfaces of the carrier, wherein each opening of the plurality of openings is aligned with one process chamber of the plurality of process chambers;

distributing sample material to at least some of the process chambers in each process array of the plurality of process arrays through the main conduit in each of the process arrays;

closing the deformable seal in each process array of the plurality of process arrays, the closing comprising supporting the main conduit with one of the main conduit support rails while compressing the first side and the second side of the sample processing device together along at least a portion of a length of the main conduit;

separating the loading structure of each process array of the plurality of process arrays from the sample processing device;

locating the second side of the sample processing device in contact with a thermal block; and

controlling the temperature of the thermal block while the sample processing device is in contact with the thermal block.

81. A method according to claim 80, wherein the loading structures comprise loading chambers, and wherein the method further comprises sealing the loading chambers before separating the loading structures from the sample processing device.

82. A method according to claim 80, wherein, for each process array of the plurality of process arrays, the loading structure comprises a loading chamber comprising an inlet port and a vent port, and wherein the method further comprises sealing the inlet port and the vent port before separating the loading structures from the sample processing device.

83. A method of processing sample materials, the method comprising:

providing a sample processing assembly comprising:

a sample processing device comprising:

a body that comprises a first side attached to a second side;

a plurality of process arrays formed between the first and second sides, wherein each process array of the plurality of process arrays comprises a loading chamber, a main conduit comprising a length, and a plurality of process chambers distributed along the main conduit, wherein the main conduit is in fluid communication with the loading chamber and the plurality of process chambers;

a deformable seal located between the loading chamber and the plurality of process chambers in each process array of the plurality of process arrays; and

a carrier attached to the sample processing device, the carrier comprising:

a first surface facing the sample processing device and a second surface facing away from the sample processing device;

a plurality of main conduit support rails proximate the first surface of the carrier, wherein each main conduit of the plurality of process arrays is aligned with one main conduit support rail of the plurality of main conduit support rails; and

a plurality of openings formed through the first and second surfaces of the carrier, wherein each opening of the plurality of openings is aligned with one process chamber of the plurality of process chambers;

distributing sample material to at least some of the process chambers in each process array of the plurality of process arrays through the main conduit in each of the process arrays;

closing the deformable seal in each process array of the plurality of process arrays, the closing comprising supporting the main conduit with one of the main conduit support rails while compressing the first side and the second side of the sample processing device together along at least a portion of the length of the main conduit;

separating the loading chambers of each process array of the plurality of process arrays from the sample processing device;

selectively compressing the first side and second side of the sample processing device together proximate each process chamber of the plurality of process chambers, the selective compression occurring between the carrier and the thermal block;

locating the second side of the sample processing device in contact with a thermal block; and

controlling the temperature of the thermal block while the sample processing device is in contact with the thermal block.

84. A method according to claim 83, wherein the selectively compressing comprises compressing substantially all of the sample processing device outside of the process chambers.

85. A method according to claim 83, wherein the selectively compressing comprises compressing a discrete area proximate each of the process chambers.

86. A method according to claim 83, wherein, for each process array of the plurality of process arrays, closing the deformable seal comprises occluding the

main conduit beginning at a point distal from the loading chamber and proceeding towards the loading chamber, whereby sample material within the main conduit is urged towards the loading chamber.

87. An apparatus for closing deformable seals in a sample processing device that includes a plurality of process arrays formed between the first and second sides, wherein each process array of the plurality of process arrays includes a loading structure, a main conduit comprising a length, and a plurality of process chambers distributed along the main conduit, wherein the main conduit is in fluid communication with the loading structure and the plurality of process chambers, and further wherein each of the deformable seals is located between the loading structure and the plurality of process chambers in one process array of the plurality of process arrays, wherein the apparatus comprises:

a base comprising a cavity adapted to receive the sample processing device;

a bridge operatively attached to the base, wherein the bridge is capable of traversing a sample processing device received in the cavity along a first direction; and

a plurality of sealing structures mounted to the bridge, each of the sealing structures adapted to deform a portion of the sample processing device to close one of the deformable seals, wherein the plurality of sealing structures are aligned along the first direction such that each main conduit is sequentially deformed by the plurality of sealing structures.

88. An apparatus according to claim 87, wherein the plurality of sealing structures comprise a plurality of rollers mounted for rotation within the bridge.

89. An apparatus according to claim 87, wherein the plurality of sealing structures comprise a plurality of rollers mounted for rotation within the bridge, wherein each of the rollers comprises a plurality of ridges, each of the ridges aligned with one main conduit of the sample processing device.

90. An apparatus according to claim 87, wherein at least one roller of the plurality of rollers comprises a relaminating roller that is substantially free of ridges.

91. A sample processing system comprising:

a sample processing device comprising:

a body that comprises a first side attached to a second side,

a plurality of process arrays formed between the first and second sides, wherein each process array of the plurality of process arrays comprises a loading structure, a main conduit comprising a length, and a plurality of process chambers distributed along the main conduit, wherein the main conduit is in fluid communication with the loading structure and the plurality of process chambers;

a thermal block on which the sample processing device is located; and

means for simultaneously and selectively compressing the first side and second side of the sample processing device together in a discrete area proximate each process chamber of the plurality of process chambers after locating the second side of the sample processing device in contact with a thermal block.

92. A system according to claim 91, wherein each process array of the plurality of process array comprises a deformable seal located between the loading structure and the plurality of process chambers.

93. A system according to claim 92, wherein the deformable seal comprises a deformable portion of the second side of the body.